The Problem, the Scope, a Solution: the old man’s perspective.

Donald Bundy, Human Development Network, The World Bank: UC Berkeley, April 14 2010

1980s...the evidence decade

- Starting to see the scale of the problem...and the solution
- Intensity of infection and development...Preventive chemotherapy
- Shift from health to development

Rockefeller Philanthropy and Public Health in the New South

The Germ of Laziness

John Ettling
ROUNDWORM Ascaris
An estimated 1221 million people worldwide are infected with *A. lumbricoides*

HOOKWORM
An estimated 795 million people worldwide are infected with hookworm

WHIPWORM Trichiuris
An estimated 740 million people worldwide are infected with whipworm

Most of the worms are in school age children
Key theoretical consequences of most worms being in school age children

- Treating school children reduces worm transmission by >70%...cf herd immunity
- Reaching school children is easy – there are more schools than clinics, more teachers than nurses
- Poor health leads to missed school and impaired learning...good reasons for the education sector to take action against worms

Over 400 million school-age children are infected with worms worldwide.

1990s...the policy decade

- Jomtien, Thailand March 1990...the first try at Education for All...first policy mention of school health
- Taking worms seriously as a development and education issue

Testing the theory of preventive chemotherapy: age-targeting of treatment in Montserrat

Bundy et al 1990
Levelling the Playing Field: Helping Sick and Hungry Children Catch Up

Categorical Fluency

Score

Pre-intervention

3 mths Post-intervention

Nokes, MacGregor and Bundy, 1992

Highly prevalent conditions affect school-age children’s health and education

<table>
<thead>
<tr>
<th>Condition</th>
<th>Prevalence</th>
<th>Total cases (millions)</th>
<th>IQ points lost per child</th>
<th>Lost years of schooling (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worms</td>
<td>30%</td>
<td>169</td>
<td>3.75</td>
<td>201</td>
</tr>
<tr>
<td>Stunting</td>
<td>52%</td>
<td>292</td>
<td>3</td>
<td>284</td>
</tr>
<tr>
<td>Anemia</td>
<td>53%</td>
<td>298</td>
<td>6</td>
<td>524</td>
</tr>
</tbody>
</table>

Source: Jukes et al. (2008)

Making sense of the costs

- 4 cents for the pills
- 6 cents for delivery
- But $2.5 to $5.5 for diagnosis?
- Hence the concept of community treatment

Proliferation of school health policy in the 1990s...deworming for health, for education, for alleviating hunger, for child rights

- Child Friendly Schools ....UNICEF
- Health Promoting Schools...WHO
- Education for All...UNESCO
- Food for Education...WFP
- School Health Initiative...World Bank
2000s...the operations decade

- World Education Forum: Dakar, 2000...a second try at EFA...now with school health
- World Health Assembly, 2001, targets deworming school age children
- Enter the economists

Focusing Resources on Effective School Health

**FRESH** as an international education partnership

- Launched at the Global “Education for All” Forum in Dakar, Senegal April 2000
- WHO, UNICEF, UNESCO, World Bank & Others

A **FRESH** Framework (for deworming):

- **Policy**: teachers deliver treatment under health worker supervision
- **Environment**: safe and hygienic schools to reduce worm transmission
- **Education**: healthy life styles - hand washing, hygiene
- **Services**: school-based treatment

World Health Assembly Resolution number 54...March 2001

- 75% of “at risk” school age children to receive regular deworming by 2010
More countries in sub-Saharan Africa implement school health programs

Cognitive evidence from operations:
Zambia deworming program improved ability to learn

Impact on education, and externalities..
Deworming can increase school participation by 7% and decrease absenteeism by 25%.

Rockefeller Foundation 1920s...Areas of the American South with high pre-eradication hookworm saw faster growth in income after deworming.
Re-analyzing the impact of the Rockefeller programs……

- Children persistently infected with worms were 13% less likely to be literate and earned 43% less as adults (Bleakley 2007).

Top 10 solutions of Copenhagen Consensus 2008

<table>
<thead>
<tr>
<th>SOLUTION</th>
<th>CHALLENGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Micronutrient supplements for children (vitamin A and zinc)</td>
<td>Malnutrition</td>
</tr>
<tr>
<td>2. The Doha development agenda</td>
<td>Trade</td>
</tr>
<tr>
<td>3. Micronutrient fortification (iron and salt iodization)</td>
<td>Malnutrition</td>
</tr>
<tr>
<td>4. Expanded immunization coverage for children</td>
<td>Diseases</td>
</tr>
<tr>
<td>5. Biofortification</td>
<td>Malnutrition</td>
</tr>
<tr>
<td>6. Deworming and other nutrition programs at school</td>
<td>Malnutrition &amp; Education</td>
</tr>
<tr>
<td>7. Lowering the price of schooling</td>
<td>Education</td>
</tr>
<tr>
<td>8. Increase and improve girls’ schooling</td>
<td>Women</td>
</tr>
<tr>
<td>9. Community - based nutrition promotion</td>
<td>Malnutrition</td>
</tr>
<tr>
<td>10. Provide support for women’s reproductive role</td>
<td>Women</td>
</tr>
</tbody>
</table>

2010…the mainstreaming decade

- School based deworming seen as integral part of public health and education programs
- Need now is to catalyze action at scale
- Revisit WHA 54: 75% by 2020?
9th Meeting of the High Level Group on Education for All
The Addis Ababa Declaration, Feb 24 2010

- Poor health...affecting hundreds of millions of poor children...reduces enrolment, increases absenteeism and diminishes cognitive development and learning.

- More and more countries are implementing cost-effective, evidence-based policies and interventions to achieve EFA...including school fee abolition, ECD programs, targeted school health and feeding programs.

School based deworming as part of the Neglected Tropical Disease (NTD) Agenda

- The 2010 USAID Global Health Initiative includes Neglected Tropical Diseases (with school based deworming as one of 5 priorities)

- The WHO/World Bank African Program for Onchocerciasis Control is transitioning by 2012 to address NTDs (including school based deworming) as a Regional Agenda for Africa.

For more information, please visit:

www.schoolsandhealth.org

The Quality of Evidence for an Impact of Health and Food on EFA

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Enrolment</th>
<th>Attendance</th>
<th>Educational achievement</th>
<th>Cognition</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-school meals</td>
<td>+ (♀ effect)</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Take-home rations</td>
<td>+ (♀ effect)</td>
<td>+</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Fortified biscuits</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Dietary iron</td>
<td>+</td>
<td>+++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Deworming</td>
<td>NA</td>
<td>+++</td>
<td>++</td>
<td>++</td>
</tr>
</tbody>
</table>

+ = evidence from quasi-experimental evaluation
++ = evidence from at least one RCT
+++ = evidence from more than one RCT
NA = not assessed